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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,408	07/30/2003	Habib Amirzadch	CE11436JME	9013
30016	7590	11/04/2004	EXAMINER	
CARDINAL LAW GROUP, LLC SUITE 2000 1603 ORRINGTON AVENUE EVANSTON, IL 60201			XIAO, KE	
			ART UNIT	PAPER NUMBER
			2675	

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,408

Applicant(s)

AMIRZADEH ET AL.

Examiner

Ke Xiao

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☒ Claim(s) 2, 12, 14 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claims 2, 12, 14 and 16 are objected to because of the following informalities:

Claim 2, line 2 reads " an LCD stack" which should be rewritten as

-- a LCD stack --

Claim 12, line 1 reads " an display" which should be rewritten as

-- a display --

Claim 14, line 3 reads "a body portion" since this is a dependent claim and a body portion was already previously claimed the phrase should read

-- the body portion --

Claim 16, line 3 reads "the communication device" since the display is part of the communication device, the communication device cannot be used as a point of reference, the examiner interpreted this as the following

-- the body portion --

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 5-7, 10, 16 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the images" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "the images" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 7 recites the limitation "the images" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 is also rejected under 35 U.S.C. 112 second paragraph because it is dependent on claim 6 which recites the limitation "the images" in line 4. There is insufficient antecedent basis for this limitation.

Claim 16 recites the limitation "the method" in line 1. There is insufficient antecedent basis for this limitation in the claim. This limitation can be overcome if the claim was amended to be dependent upon claim 12 instead of claim 11.

Claim 16 recites the limitation "the images" in line 2. There is insufficient antecedent basis for this limitation in the claim. This limitation can be overcome if the claim was amended to be dependent upon claim 12 instead of claim 11.

Claim 16 recites the limitation "the axis of rotation" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "the axis of rotation" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim. This limitation can be overcome if the claim was amended to be dependent upon claim 19 instead of claim 17.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Higginbotham (5,896,575).

Higginbotham discloses the following limitations of the above claims:

Computer readable code for distinguishing images in an array of pixels controlled by circuitry (Fig. 8, Col. 4 lines 18-40, Fig. 3, Col. 2 lines 54-68)

Computer readable code for storing the distinguished images in memory (Fig. 8 element 810, Col. 4 lines 41-60)

Computer readable code for providing a rotate-mode signal to a processor electrically connect to the circuitry in response to actuation of a switch (Fig. 8 element 606, Col. 4 lines 18-40)

Computer readable code for determining how to modify inputs to the circuitry operable to flip the image according to the output of the switch which is equivalent to rotating the distinguished images stored in the memory about an axis of rotation in response to the rotate-mode signal (Fig. 8, Col. 4 lines 35-40).

Regarding claim 20, if the claim is amended to address the 35 U.S.C. 112 rejections as stated above Higginbotham teaches computer readable code for rotated images in an array of pixels controlled by circuitry upon rotation of the distinguished images about the axis of rotation (Fig. 8, Col. 4 lines 35-40).

Also, please refer to Figure 1 and 2, Col. 2 lines 15-55.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 and 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higginbotham (5,896,575) in view of Lu (5,570,216).

Regarding claims 1-3, 6 and 9-11, Higginbotham teaches all limitations of the claims except for the inner and outer bistable clear reflective layers and the claimed structure of the LCD display.

Higginbotham teaches the following:

A communication device comprising (Fig. 1-2, Col. 2 lines 15-30)

A body portion (Fig. 2 element 104)

A display portion rotatably connected to the body portion (Fig. 2 element 102).

A LCD stack positioned between rigid outer seals (Fig. 3, Col. 2 lines 54-68).

The images described above comprise letters and numerals (Fig. 1-4)

The images displayed are flipped with respect to the position of the display which is equivalent to the images described above rotated about an axis parallel to the axis of rotation of the hinge as claimed (Fig. 2, Col 2 lines 30-55, Fig. 6, Col. 3 lines 60-68, Fig. 8, Col. 4 lines 18-40)

Higginbotham does not expressly disclose the following:

Inner and outer bistable clear-reflective layers in opposite modes

The inner bistable clear-reflective layer is clear when the display is in an open position and reflective when the display is in a closed position

The outer bistable clear-reflective layer is reflective when the display portion is in an open position and clear when the display portion is in a closed position

Lu discloses a bistable cholesteric liquid crystal display. The two states or modes of the display comprise of an optically transparent state and a reflective state (Col. 5

lines 1-15). Lu also teaches that in order to change from the optically transparent state to the reflective state one must have an AC voltage already driving the liquid crystal and then quickly remove that voltage. If one wants to switch to back to the transparent state then one must drive the liquid crystal with another AC voltage. If no voltage is applied then the liquid crystal will remain in its current state (Col. 5 lines 15-28).

Lu also discloses that depending on the type of display that is desired a plurality of the displays can be stacked on top of one another (Col. 5 lines 28-34).

It would have been obvious to one of ordinary skill in the art to replace the electrochromatic displays used in the communication device as taught by Higginbotham with the bistable cholesteric liquid crystal displays as taught by Lu because such displays do not have to be actively charged in order to retain state which saves energy and also have good contrast and excellent mechanical stability.

It would have been obvious to one of ordinary skill in the art to include both an inner and an outer display as described by Lu in the display of the communication device of Higginbotham because the display can be viewed from both sides and Lu taught that the displays can be stacked on top of each other as desired by the user (Col. 5 lines 28-34). Also it would have been obvious to operate the layers on opposite modes depending on the position of the display, when the display is open the outer layer should be reflective to take advantage of ambient light and the inner layer should be clear to allow the user to view the image, when the display is closed the outer layer

should be clear to allow the user to view the image and the inner layer should be reflective to take advantage of ambient light.

Regarding claim 4, Higginbotham does not expressly disclose the use of a power source, which provides a voltage pulse to the inner and outer layers responsive to the switch. A power source is known to provide voltage pulses. It would have been obvious to one of ordinary skill in the art to use a power source to change the mode of the liquid crystal displays described by Lu because such devices require different voltages to change from state to state, and the switch which detects the position of the display with respect to the body of the communication device as described by Higginbotham would affect the power supply so that it can provide the correct voltages in order to operate the display.

Regarding claim 5, Higginbotham further discloses a controller electrically connect to the display to rotate images on the LCD stack wherein the switch is operable to signal the controller to rotate the images on the LCD stack in response to the rotation (Fig. 8, Col. 4 lines 18-60).

Regarding claim 7, Higginbotham further discloses a hinge rotatably connecting the display portion to the body portion of the communication device (Fig. 2 element 106).

Regarding claims 12-16, Higginbotham in view of Lu teaches sending a reverse mode signal to the display responsive to a rotation of the display position with respect to the body portion to change the state of the display (Col. 4, lines 35-40).

Higginbotham in view of Lu does not expressly disclose that the modes of the inner and outer layers of the display are reversed in response to the reverse mode signal. It would have been obvious to one of ordinary skill in the art to change the modes of the inner and outer layers of the display in response to the reverse mode signal in order to correctly display the desired image on the appropriate face of the display. It is also obvious to operate the layers on opposite modes depending on the position of the display, when the display is open the outer layer should be reflective to take advantage of ambient light and the inner layer should be clear to allow the user to view the image, when the display is closed the outer layer should be clear to allow the user to view the image and the inner layer should be reflective to take advantage of ambient light.

Regarding claim 15, Higginbotham also teaches that images displayed comprise letters and numerals (Fig. 1-4).

Regarding claim 16, if the claim is amended to address the 35 U.S.C. 112 rejection as state above Higginbotham teaches that the images are flipped vertically which is equivalent to rotating 180 degrees about an axis parallel to the axis of rotation of the display with respect to the display device.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Higginbotham (5,896,575) and Lu (5,570,216) as applied to claim 1 above, and further in view of Lee (US 2003/0112217 A1).

Higginbotham and Lu disclose all limitations of claim 8 except for a lightguide, which provides frontlighting when the display portion is in a closed position backlighting when the display portion is in an open position.

Lee discloses the use of a LED backlight with a light guide plate to illuminate a dual display LCD (Fig. 5, Pg. 3 paragraphs [0031-0032]).

It would have been obvious to one of ordinary skill in the art to incorporate a LED backlight with a light guide plate as taught by Lee in a communications device with a dual display as taught by Higginbotham and Lu because it would provide a light source when ambient light is not sufficient to light the LCD.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Higginbotham (5,896,575). Higginbotham teaches computer readable code for determining how to modify inputs to the circuitry operable to rotate the updated distinguished images in response to the rotated-mode signal, and computer readable code for modifying input to the circuitry operable to flip the images vertically which is equivalent to rotating about an imaginary axis by 180 degrees. Higginbotham does not expressly disclose computer readable code for periodically updating the distinguished images in an array of pixels controlled by circuitry, and computer readable code for storing the updated distinguished images in the memory. It is well known in the art to update the distinguished images in an array of pixels controlled by circuitry, this is known as a screen refresh. It is also well known in the art to update distinguished images in memory, which can be interpreted as a frame buffer. It would have been

obvious to provide code for updating the screen as claimed to allow the screen to change the image being displayed as desired by the user. Also, it would have been obvious to update the memory as claimed because it would allow the user to manipulate images stored in memory so as to change what is being displayed to the screen.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Gruenberg:	Patent Number -	5,313,318
Kweon:	Publication Number -	US 2002/0111195 A1
Lee:	Publication Number -	GB 2 343 324 A

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (703) 305-5584. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 703-305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2675

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 29, 2004 -kx



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